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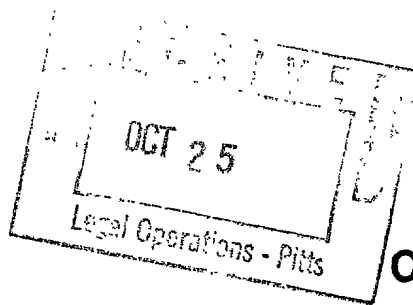
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office
Washington, D.C. 2023
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Paper No. 6

09/22/00
JC685 U.S. PTO



FRANK A. SMITH
GENERAL ELECTRIC COMPANY
ONE PLASTICS AVENUE
PITTSFIELD, MA 01201



JC685 U.S. PTO
09/22/00
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OCT 22 2001

In re Application of
Raphael Mestanza
Application No. 09/313,063
Filed: May 17, 1999
Attorney Docket No. 8CL-7194

OFFICE OF PETITIONS

ON PETITION

This is a decision on the copy of the petition received by facsimile transmission on October 16, 2001, which petition was originally received in the PTO on September 22, 2000, requesting withdrawal of the above-identified application from issue after payment of the issue fee.

The petition is **DISMISSED** as moot.

Unfortunately, the petition to withdraw from issue filed on September 22, 2000 did not reach the appropriate deciding official's office for action until after issuance of this application into Patent No. 6,136,945 on October 24, 2000. Petitioner's attention is directed to 37 CFR 1.313(d), which states:

A petition under this section will not be effective to withdraw the application from issue unless it is actually received and granted by the appropriate officials **before the date of issue**.

Note also 1220 *off. Gaz. Pat. Office* 42 (March 9, 1999), under "Patents to Issue More Quickly after Issue Fee Payment," and 1221 *off. Gaz. Pat. Office* 14 (April 6, 1999), under "Filing of Continuing Applications, Amendments, or Petitions After Payment of Issue Fee," which states:

In the event that it is necessary to file a petition under 37 CFR 1.313 (b) [now 37 CFR 1.313(c)] to withdraw an application from issue

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after payment of the issue fee, the PTO strongly recommends that the petition be clearly marked "Petition under 37 CFR 1.313(b)" and be either:

- (1) Submitted by facsimile to (703) 308-6916; or
- (2) Hand-carried to the Office of Petitions.

Otherwise, it is quite possible that the petition will not be brought before the appropriate deciding official before the date the application issues as a patent.

The most common petition under 37 CFR 1.313(b) is a petition under 37 CFR 1.313(b)(5) to withdraw an application from issue for abandonment in favor of a continuing application to permit consideration of an information disclosure statement (IDS) in the continuing application. In this event, applicants are encouraged to file the petition under 37 CFR 1.313(b)(5) with a continued prosecution application (CPA) under 37 CFR 1.53 (d) by facsimile to (703) 308-6916. The petition need not be accompanied by the IDS (if the size of the IDS makes its submission by facsimile impracticable), but the petition should indicate that an IDS will be filed in the CPA if an IDS does not accompany the petition under 37 CFR 1.313(b)(5).

As evidenced by the copy of the stamped return post card receipt accompanying the October 16, 2001, facsimile transmission, the Office also acknowledged receipt of a CPA transmittal, an Information Disclosure Statement, PTO Form 1449, and the references cited. These papers have not to date been located.

Petitioner may request by way of a petition under 37 CFR 1.53(e) that the 37 CFR 1.53(d) request for a continued prosecution application be converted to a 37 CFR 1.53(b) continuing application in order to have the prior art considered by the examiner. The petition to convert should be directed to the Office of Petitions and must include the filing of a complete copy of the prior application, i.e., specification, claims, and drawings, if required, and a copy of the signed oath/declaration. Information regarding the filing of a petition to convert may be obtained by calling the undersigned at (703) 305-8680. Additionally, since the September 22, 2000 submission cannot be located, petitioner should also submit a copy of the references cited in Form PTO 1449 to be considered in the continuing application under 37 CFR 1.53(b).

Should petitioner choose this course of action, petitioner should include a copy of this decision with the petition under 37 CFR 1.53(e). The examiner is to make all applicable prior art rejections (not just include a statutory double patenting rejection under 35 U.S.C. § 101) based upon the information cited in the IDS, alone or with other information of record, in the resulting application under 37 CFR 1.53(b).

Telephone inquiries should be directed to the undersigned at (703) 305-8680.

The patented file will be retained in the Office of Petitions for one month to await submission of the petition under 37 CFR 1.53(b). If no petition is received within that time, the patented file will be forwarded to Files Repository.



Frances Hicks

Lead Petitions Examiner

Office of Petitions

Office of the Deputy Commissioner
for Patent Examination Policy

TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.
08CL07194 (GP1-0075)

In Re Application Of: **Raphael Mestanza**

Serial No.

Filing Date

Examiner

Group-Art Unit

9/22/00

Title: **METHOD FOR QUENCHING OF POLYCARBONATE AND COMPOSITIONS PREPARED THEREBY**

Address to

Assistant Commissioner for Patents
Washington, D.C. 20231

37 CFR 1.97(b)

- ☒ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application; within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; or before the mailing date of a first Office Action on the merits, whichever event occurs last.

37 CFR 1.97(c)

- ☐ The Information Disclosure Statement submitted herewith is being filed after three months of the filing of a national application, or the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; or after the mailing date of a first Office Action on the merits, whichever occurred last but before the mailing date of either:

1. a Final Action under 37 CFR 1.113, or
2. a Notice of Allowance under 37 CFR 1.311,

whichever occurs first.

Also submitted herewith is:

- ☐ a certification as specified in 37 CFR 1.97(e);

OR

- ☐ the fee set forth in 37 CFR 1.17(p) for submission of an Information Disclosure Statement under 37 CFR 1.97(c).

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TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.
08CL07194 (GP1-0075)

In Re Application Of: **Raphael Mestanza**

Serial No.

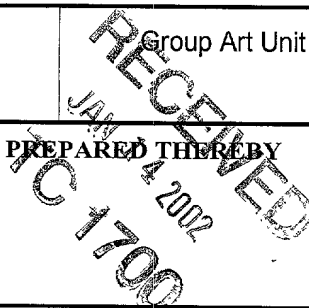
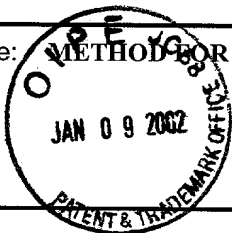
Filing Date

9/22/00

Examiner

Group Art Unit

Title: **METHOD FOR QUENCHING OF POLYCARBONATE AND COMPOSITIONS PREPARED THEREBY**



Payment of Fee

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

- ☐ A check in the amount of _____ is attached.
- ☒ The Assistant Commissioner is hereby authorized to charge and credit Deposit Account No. **07-0862** as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of _____
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Signature

Pamela J. Curbelo
Registration No. 34,676
Customer No. 23413
Phone No. (860) 286-2929

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I certify that this document and fee is being deposited on **11/8/01** with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature of Person Mailing Correspondence

Tracy A. Sweatt

Typed or Printed Name of Person Mailing Correspondence

Dated: November 8, 2001

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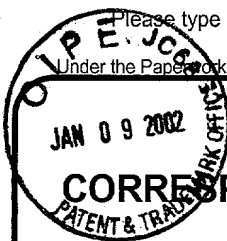
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CHANGE OF CORRESPONDENCE ADDRESS Application

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Washington, D.C. 20231

Application Number

Filing Date

9/22/00

First Named Inventor

Raphael Mestanza

Group Art Unit

Examiner Name

Attorney Docket Number

08CL07194 (GP1-0075)



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I am the :



Applicant/Inventor.



Assignee of record of the entire interest.

Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).



Attorney or Agent of record.



Registered practitioner named in the application transmittal letter in an application without an executed oath or declaration. See 37 CFR 1.33(a)(1). Registration Number _____

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Pamela J. Curbelo Registration No. 34,676

Signature

Date

November 8, 2001

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.



*Total of 1 forms are submitted.

Burden Hour Statement: This form is estimated to take 3 minutes to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8)Applicant(s): **Raphael Mestanza**

Docket No.

08CL07194 (GP1-0075)

Serial No.

09/313,063

Filing Date

9/22/00

Examiner

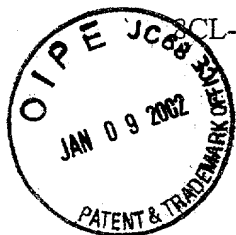
T. Boykin

Group Art Unit

1711Invention: **METHOD FOR QUENCHING OF POLYCARBONATE AND COMPOSITIONS PREPARED THEREBY****JAN 09 2002****RECEIVED**
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is being deposited with the United States Postal Service as first class mail in an envelope addressed to: The

Assistant Commissioner for Patents, Washington, D.C. 20231 on **November 8, 2001***(Date)***Tracy A. Sweatt***(Typed or Printed Name of Person Mailing Correspondence)**(Signature of Person Mailing Correspondence)***Note: Each paper must have its own certificate of mailing.****RECEIVED****JAN 23 2002****OFFICE OF PETITIONS**



JCL-7194

METHOD FOR QUENCHING OF POLYCARBONATE AND COMPOSITIONS PREPARED THEREBY

CROSS REFERENCE TO RELATED PATENTS

None

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not applicable.

BACKGROUND OF THE INVENTION

This application relates to the finishing of polycarbonate using a melt process, and in particular to a method for quenching residual catalyst used in the polycarbonate-forming reaction, and the products formed by this reaction.

Aromatic polycarbonates are useful in a great many applications because of their desirable physical properties, including strength and optical clarity. There are three processes known for the production of aromatic polycarbonates, which are illustrated in Fig. 1. The conventional interfacial process and the phosgene-based melt process start with the reaction of phosgene with carbon monoxide. The "no phosgene" melt process was developed to eliminate the use of highly toxic phosgene in the reaction process.

Both types of melt processes make use of a diarylcarbonate such as diphenylcarbonate (DPC) as an intermediate, which is polymerized with a dihydric phenol such as bisphenol A (BPA) in the presence of an alkaline catalyst to form a

polycarbonate in accordance with the general reaction shown in Fig. 2. This polycarbonate may be extruded or otherwise processed, and may be combined with additives such as dyes and UV stabilizers. In many cases, however, the presence of residual catalyst has a detrimental effect on the quality of the product, leading to poor color, molecular weight or rheological properties. Residual catalyst may also interact with additives, detracting from their efficacy. Thus, it is desirable to reduce the levels of residual catalyst to minimize these interactions. Such reduction is referred to as "quenching."

Commonly assigned US Patent No. 5,606,007, which is incorporated herein by reference, discloses the use of acidic compounds to quench residual alkalinity. The acid compounds tested are shown to produce polycarbonates with improved heat and water resistance, and low yellowness indices. An important consequence of residual alkaline catalyst which is not directly addressed by this patent is the base-catalyzed coupling of UV absorbers to the polycarbonate backbone. Normally, amounts of liquid quencher of less than 4 ppm are utilized. Although this amount is small, it corresponds to approximately 4 times the theoretical amount of quencher which should be necessary to neutralize all of the catalyst used. Nevertheless, despite the excess of quencher, reaction between UV absorber and polycarbonate backbone still occurs, impairing the efficiency of UV protection. Furthermore, it does not appear that the addition of more quencher has any significant effect on the levels of reaction between the UV absorber and the polycarbonate once a threshold has been reached. Thus, there remains a need for a method for quenching residual alkaline catalyst which more effectively reduces the interaction of UV absorbers with polycarbonate.

It would be desirable to provide such a method.

It would further be desirable to provide finished polycarbonate compositions with high UV retention values and good color stability.

SUMMARY OF THE INVENTION

These and other objects of the invention are provided by a method for finishing polycarbonate produced by melt condensation of a diaryl carbonate and a dihydric phenol in the presence of a basic catalyst to produce an intermediate polycarbonate composition, comprising the steps of;

(a) combining the intermediate polycarbonate composition with an alkyl tosylate quencher and phosphorous acid; and

(b) processing the combination of the intermediate polycarbonate composition and the quenchers composition to blend the combination and quench residual basic catalyst present in the intermediate polycarbonate composition. The efficiency of quenching can be measured by UV retention. Surprisingly, although phosphorous acid alone has no impact on the UV retention, the combination of alkyl tosylate quenchers and phosphorous acid provides a significant improvement over the use of the alkyl tosylate quencher alone. Thus, the method of the invention permits a reduction in the amount of alkyl tosylate quencher used, and can achieve superior results which cannot be achieved even by increasing the alkyl tosylate levels.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows three methods for manufacturing polycarbonates; and

Fig. 2 shows the reaction of a diarylcarbonate and a dihydric phenol to produce a polycarbonate.

DETAILED DESCRIPTION OF THE INVENTION

In the method of the present invention, residual alkaline catalyst present in a polycarbonate composition formed from the reaction of a diaryl carbonate and a dihydric phenol is quenched using an alkyl tosylate and phosphorous acid to provide a polycarbonate composition with improved properties. The method of the invention

can be employed as a finishing step in the preparation of polycarbonates where an intermediate polycarbonate composition is formed from the reaction of a diaryl carbonate and a dihydric phenol in the presence of a basic catalyst in a melt.

Preparation of polycarbonate compositions using this basic technique are known in the art, for example from US Patents Nos. 5,717,057, 5,606,007 and 5,319,066 which are incorporated herein by reference.

While a preferred diaryl carbonate for use in the method of the invention is diphenyl carbonate, other diaryl carbonates may be used to make specialty polycarbonates. Various methods for synthesis of diaryl carbonates are known, for example from US Patents Nos. 5,210,268, 5,834,615 and 5,713,453 which are incorporated herein by reference.

A preferred dihydric alcohol for use in the method of the present invention is bisphenol A. Other dihydric alcohols, including those listed in US Patent No. 5,717,057 may also be used.

Catalysts used in the method of the present invention to form the intermediate composition are basic catalysts such as alkali metal or alkaline earth metal compounds or nitrogen-containing basic compounds which are effective to catalyze the production of polycarbonates by melt condensation of the diaryl carbonate and the dihydric phenol. Any of the known catalysts useful for this purpose may be employed.

The method of the invention provides a finishing step to reduce or eliminate residual catalyst in the polycarbonate product in order to minimize detrimental effects on the properties of the finished product. In accordance with the invention, this finishing step is accomplished by combining the intermediate polycarbonate composition with an alkyl tosylate and phosphorous acid; and processing the combination of the intermediate polycarbonate composition and the alkyl tosylate and phosphorous acid to blend the compositions and quench residual basic catalyst present in the intermediate polycarbonate composition.

The alkyl tosylate and the phosphorous acid may be introduced directly into the polycarbonate product of a base-catalyzed polycondensation. Alternatively, the intermediate polycarbonate product may be pelletized, and then remelted, for example in an extruder, for compounding with the quenchers. The amount of alkyl tosylate added will depend on the amount of alkaline catalyst used in the original reaction. For common commercial levels of catalyst, a suitable level of n-butyl tosylate quencher is between 1 and 7 ppm.

The alkyl tosylate quencher may be combined with the polycarbonate condensation product in any of several ways. In a first embodiment, the alkyl tosylate is combined with a polycarbonate powder, optionally containing additional finishing additives, and introduced through a side feed of the extruder. In a second embodiment, the alkyl tosylate is combined with a liquid carrier, for example propylene carbonate, and injected into the molten polycarbonate within the extruder. In a third embodiment, the alkyl tosylate is combined with polycarbonate in pellets and introduced through a side feed of the extruder. The pellets may be formed by pre-compounding the alkyl tosylate with polycarbonate; by compacting a mixture of polycarbonate powder and alkyl tosylate; or by coating alkyl tosylate as a layer on the exterior of polycarbonate pellets. Introduction of alkyl tosylate quenchers using each of these approaches is described in US Patent Application Serial No. 09/273,379, which is incorporated herein by reference.

The introduction of phosphorous acid can be accomplished as part of a powder masterbatch, optionally including other additives. This masterbatch is introduced via a side feed of the extruder. The phosphorous acid can also be introduced by liquid injection in water solution via a nozzle mounted in the extruder. The amount of phosphorous acid added will depend on the amount of alkaline catalyst used in the original reaction. For common commercial levels of catalyst, a suitable level of phosphorous acid quencher is between 1 and 6 ppm.

As described in the examples below, test runs were made comparing polycarbonate finished with quenching compositions in accordance with the invention to polycarbonate finished without quencher or using an alkyl tosylate quencher or phosphorous acid quencher alone. To analytical tests were used to evaluate the efficiency of quenching.

In the first test, the reactivity between polycarbonate and a UV absorber (Cyasorb 5411™, supplied by Cytec) was measured. Since this UV absorber has a reactive OH group, it can react in the presence of residual catalyst with the polycarbonate backbone. The amount of this reaction which occurs can be determined by measuring the UV absorbance due to the UV absorber, and is directly proportional to the amount of residual catalyst. Quantitatively, the amount of reaction can be

$$\%UVRetention = \frac{\text{Amount detected after solvent extraction}}{\text{Amount detected after full hydrolysis}} \times 100$$

expressed as

The higher the UV retention is, the better. Surprisingly, despite the fact that phosphorous acid alone was ineffective to improve UV retention, the UV retention observed for the combination of the n-butyl tosylate and phosphorous acid was higher than that obtained for n-butyl tosylate, even at higher levels.

The second test performed is a color stability test. In this test, the yellowness indices of two chips of polycarbonate molded at 360°C, one for a standard cycle time and one for a prolonged cycle time of 15 minutes are compared. The greater the difference between the yellowness index of the two chips, the less color stability the composition exhibits. Thus, it is desirable to have a low value for the color stability rating. The best results were obtained using the combination of n-butyl tosylate and phosphorous acid.

The invention will now be further described with reference to the following, non-limiting examples.

EXAMPLE 1

Experiments to evaluate the efficiency of quenchers and quencher

5 combinations in accordance with the invention were performed on a large scale JSW co-rotative twinscrew extruder 160 mm, at 300°C, with a screw speed of 200 rpm and a throughput of 5300 kg/hr. An intermediate polycarbonate composition was finished by introduction of various additives. For all samples, water at a level of 100 ppm and pentaerythritol tetrastearate (PETS) were injected into the extruder via nozzles and a
10 polycarbonate powder masterbatch containing 0.1 wt % heat stabilizer and 0.3 wt % UV absorber (Cyasorb 5411) was added via a side feeder. Phosphorous acid, when used, was also introduced with this masterbatch. Samples finished with n-butyl tosylate were treated by injecting a solution containing 4% n-butyl tosylate in propylene carbonate at a rate of 0.5 to 1.0 kg/hr.

15 A total of six experiments were conducted as summarized in Table 1. The resulting products were evaluated for % UV retention and color stability, as reflected in the increase in yellowness index (YI) following 15 minutes at 360°C. As shown in Table 1, sample 6 which was treated with both n-butyl tosylate and phosphorous acid exhibited surprisingly superior results.

Table 1				
Sample	ppm butyl tosylate	ppm H ₃ PO ₃	%UV Retention	Dwell YI Increase 360C, 15 min
1	-	-	45	4.8
2	2.4	0	65	4.2
3	3.6	0	80	3.8
4	4.8	0	78	3.7
5	0	6	43	5.5
6	3.6	2	93	3

EXAMPLE 2

Solid polycarbonate pellets containing alkyl tosylate quencher which can be used in the method of the present invention can be prepared in the three ways.

Precompounded quencher masterbatch pellets were prepared by dry blending of mixture of 100 parts polycarbonate powder and 0.3 parts n-butyl tosylate in a Henschel blender for a few minutes. The dry blended mixture was then compounded in a Leitritz co-rotative twin screw extruder 34 mm at 270°C, 250 rpm and 15 kg/hr. No vacuum was applied during the compounding to avoid volatilization of the quencher. After compounding, dry, transparent and natural pellets were obtained, and no processing issues were experienced. Analysis of the pellets by HPLC determined that they contained 1950 ppm n-butyl tosylate and 400 ppm of p-toluene sulfonic acid (also active as a quencher) which was formed from hydrolysis and thermal decomposition of the n-butyl ester.

Compacted pellets were prepared by dry blending a mixture of 98 parts polycarbonate powder, 2 parts pentaerythritol tetrastearate (PETS) and 0.3 parts of n-

butyl tosylate. The dry blended mixture was compacted in a UMT compactor having a die diameter of 3 mm and a length of 12 mm at 15 kg/hr. The knife was adjusted to obtain regular white cylinders with an average length of 12 mm. PETS is used as a lubricant to minimize heat generation by friction. Formulations containing 1.5 parts
5 PETS were difficult to compact but acceptable. Formulations containing less than 1 part PETS could not be compacted in this apparatus. Analysis of n-butyl tosylate in the compacted pellets was done by HPLC, and indicated levels of 2990 ppm with excellent consistency (Std. Deviation = 46).

Coated pellets were prepared in a 150 liter Nauta-Hosokawa conic blender. 90
10 kg of polycarbonate pellets were introduced into the blender at room temperature and pre-blended for 5 minutes at 300 rpm. While maintaining the blending, 270 gr of n-butyl tosylate (0.3 wt % of the total PC weight) were then air sprayed into the pellets over a period of 2 minutes, creating a mist in the space over the top of the pellets. Blending continued for 10 minutes, during which time the quencher was absorbed by
15 the pellets and the mist disappeared. The resulting pellets were dry, slightly hazy, and have the characteristic odor of the butyl tosylate. HPLC analysis indicated an average amount of quencher as 2500 ppm, suggesting some quencher accumulation on the wall of the blender.

What is claimed is:

1. A method for finishing polycarbonate produced by reaction in a melt of a diaryl carbonate and a dihydric phenol in the presence of a basic catalyst to produce an intermediate polycarbonate composition, comprising the steps of

(a) combining the intermediate polycarbonate composition with an alkyl tosylate and phosphorous acid; and

(b) processing the combination of the intermediate polycarbonate composition, the alkyl tosylate and the phosphorous acid to blend the combination and quench residual basic catalyst present in the intermediate polycarbonate composition.

2. The method of claim 1, wherein the alkyl tosylate is n-butyl tosylate.

3. The method of claim 2, wherein the amount of n-butyl tosylate is from about 2 to about 5 ppm.

4. The method of claim 3, wherein the amount of phosphorous acid is from about 1 to about 6 ppm.

5. The method of claim of claim 1, wherein the alkyl tosylate is combined with the intermediate polycarbonate composition in a liquid carrier.

6. The method of claim 3, wherein the alkyl tosylate is n-butyl tosylate.

7. The method of claim 4, wherein the liquid carrier is propylene carbonate.

8. The method of claim 6, wherein the amount of n-butyl tosylate is from about 2 to about 5 ppm.

9. The method of claim 8, wherein the amount of phosphorous acid is from about 1 to about 6 ppm.

10. An aromatic polycarbonate composition comprising
 - (a) an aromatic polycarbonate obtained by reacting a diaryl carbonate and a dihydric phenol in the presence of a basic catalyst in a melt;
 - (b) an alkyl tosylate; and
 - (c) phosphorous acid.
11. The composition of claim 10, wherein the alkyl tosylate is n-butyl tosylate.
12. The composition according to claim 11, wherein the n-butyl tosylate is present in an amount of from about 2 to 5 ppm.
13. The composition according to claim 12, wherein the phosphorous acid is present in an amount of from about 1 to 6 ppm.
14. The composition according to claim 11, wherein the phosphorous acid is present in an amount of from about 1 to 6 ppm.

Fig. 1A

CONVENTIONAL INTERFACIAL

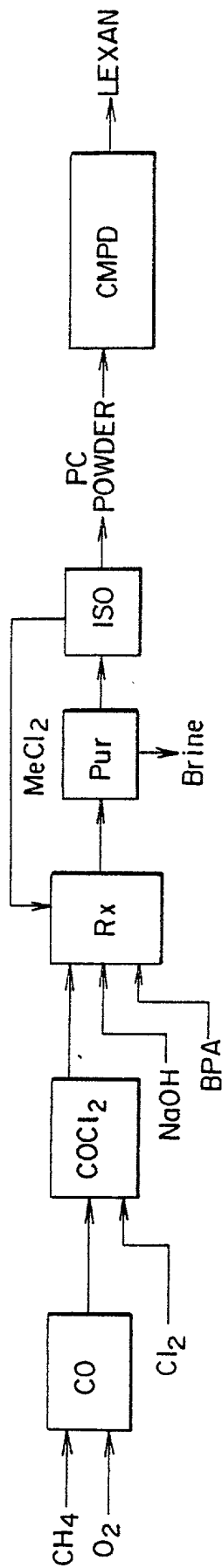


Fig. 1B

MELT

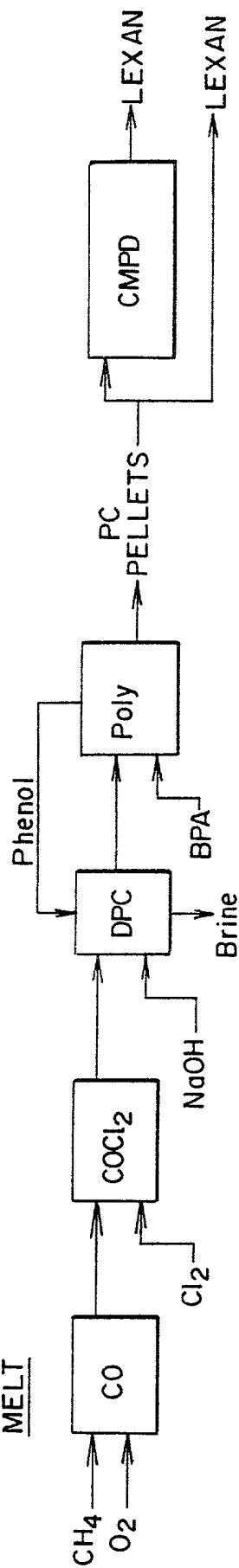
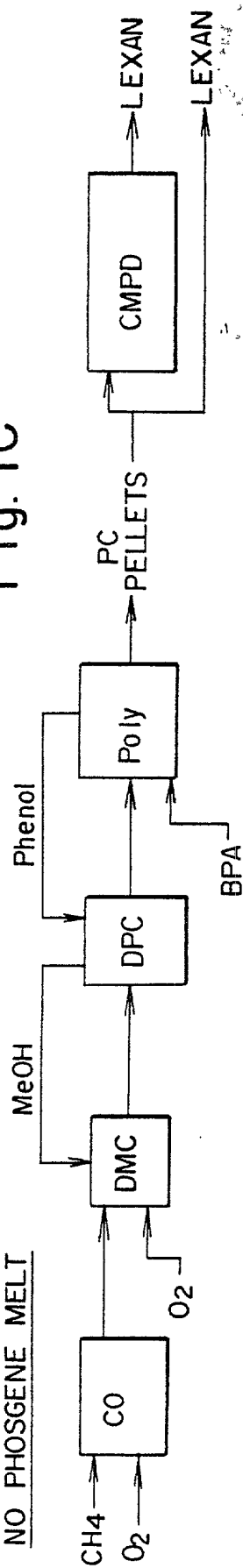


Fig. 1C

NO PHOSGENE MELT



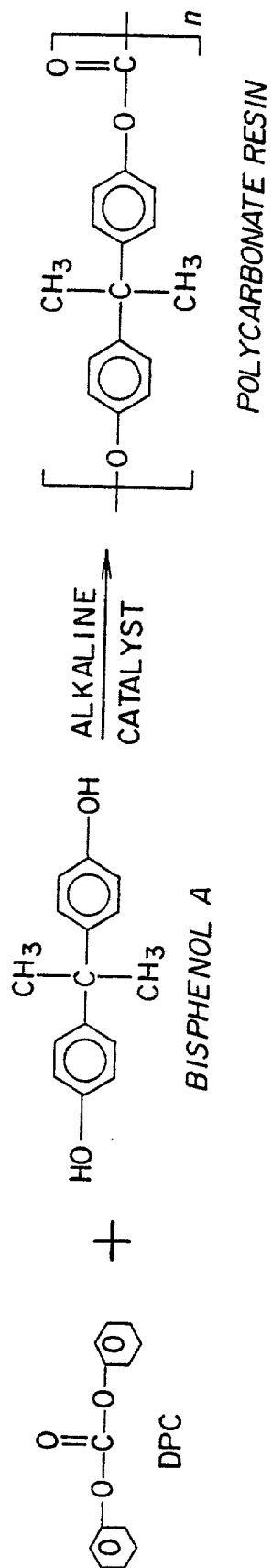


Fig. 2



Docket: 8CL-7194

COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD FOR QUENCHING OF POLYCARBONATE AND COMPOSITIONS PREPARED THEREBY, the specification of which:

☒ is attached hereto.
— was filed on _____ as Application Serial No. _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information which is material to patentability (as defined in 37 C.F.R. § 1.56) in connection with the examination of this application.

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the matter provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)

(patented, pending, abandoned)

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

Country

Application No.

Date of Filing

Priority Claimed

I hereby appoint; Robert E. Walter, Reg. No. 25,245; and Kenneth S. Wheelock, Reg. No. 36,340, John B. Yates, Reg. No. 39,433, Kevin E. McVeigh, Reg. No. 33,017, Frank A. Smith, Reg. No. 39,375, Michelle Bugbee, Reg. No. 42,370 all of General Electric Company, One Plastics Avenue, Pittsfield, MA 01201, Ronald E. Myrick, Reg. No. 26,315 of General Electric Company, (W3E) 3135 Easton Turnpike, Fairfield, CT 06431-0001, and Henry J. Policinski, Reg. No. 26,621 of General Electric Company, (W3D) 3135 Easton Turnpike, Fairfield, CT 06431-0001, jointly and each of them severally, my attorneys or agents and attorney or agent, with full power of substitution, delegation and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent and Trademark Office connected therewith. I hereby direct that all correspondence and telephone calls in connection with this application be addressed to the said:

Frank A. Smith at General Electric Company, One Plastics Avenue, Pittsfield, MA, 01201
Telephone No.: (413) 448-7604

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that all such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Raphael Mestanza

Inventor's signature

Raphael Mestanza

May 12th, 1997

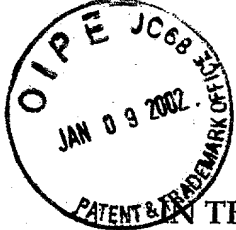
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THE UNITED STATES PATENT AND TRADEMARK OFFICE 8CL-7194

In re Application of: Raphael Mestanza
Serial Number: 09/313,063
Filed: 05/17/99
Examiner: T. Boykin
Group Art Unit: 1711
For: METHOD FOR QUENCHING OF
POLYCARBONATE AND COMPOSITIONS
PREPARED THEREBY

ASSOCIATE POWER OF ATTORNEY

Assistant Commissioner for Patents
Washington, D.C. 20231
Sir:

RECEIVED

JAN 23 2002

OFFICE OF PETITIONS

Please recognize:


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all of CANTOR COLBURN LLP, 55 Griffin Road South, Bloomfield, CT 06002, as my associate attorneys in the above-identified application, with full power to prosecute the same and to transact all business in the Patent Office connected therewith.

Respectfully submitted,

RAPHAEL MESTANZA

GENERAL ELECTRIC PLASTICS
Applicants' Attorneys

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